

## CLAIMS

What is claimed is:

1. An image-correction method, comprising:

5        a distance calculating step of calculating the distance between the coordinates of an image-constituting pixel and predetermined reference coordinates;

10      a distance-correction value calculating step of calculating a distance-correction value, by inputting for the variable in an N-order function (N being a positive integer) the distance that has been calculated in the distance calculating step.

15      a correction coefficient calculating step of calculating, based on a table that represents correspondences between distance-correction values and correction coefficients, a correction coefficient corresponding to the distance-correction value that has been calculated in the distance-correction value calculating step; and

20      a pixel signal correcting step of correcting a signal for the pixel, based on the correction coefficient that has been calculated in the correction coefficient calculating step.

25      2. The image-correction method according to claim 1, comprising a correction coefficient calculating step of calculating the correction coefficient corresponding to the distance-correction value that has been calculated in the distance-correction value calculating step, by, based on the table that represents correspondences between distance-correction values and correction coefficients, linear interpolation using

distance-correction-value data and correction-coefficient data that are stored in the table.

3. The image-correction method according to claim 1, wherein the reference  
5 coordinates in the distance calculating step, the coefficients for the variable  
in the N-order function in the distance-correction value calculating step,  
and the distance-correction values and correction coefficients stored in the  
table in the correction coefficient calculating step can be determined for  
each color component of the pixel.

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4. The image-correction method according to claim 1, comprising a distance  
calculating step of calculating the distance, by regarding as the distance  
the sum of the distance between the coordinates of a pixel corresponding to  
the image signal and the one of two sets of predetermined reference  
15 coordinates, and the distance between the coordinates of the pixel and the  
other of two sets of predetermined reference coordinates.

5. An image-correction method, comprising:

a horizontal-direction distance calculating step of calculating the  
20 horizontal-direction distance between the coordinates of an  
image-constituting pixel and predetermined reference coordinates;  
a horizontal-direction distance-correction value calculating step of  
calculating a horizontal-direction distance-correction value, by inputting  
for the variable in a first N-order function (N being a positive integer) the  
25 horizontal-direction distance that has been calculated in the

horizontal-direction distance calculating step;

a first correction coefficient calculating step of calculating, based on a first table that represents correspondences between horizontal-direction distance-correction values and first correction coefficients, a first correction coefficient corresponding to the horizontal-direction distance-correction value that has been calculated in the horizontal-direction distance-correction value calculating step;

a vertical-direction distance calculating step of calculating the vertical-direction distance between the coordinates of an image-constituting pixel and predetermined reference coordinates;

a vertical-direction distance-correction value calculating step of calculating a vertical-direction distance-correction value, by inputting for the variable in a second N-order function (N being a positive integer) the vertical-direction distance that has been calculated in the vertical-direction distance calculating step;

a second correction coefficient calculating step of calculating, based on a second table that represents correspondences between vertical-direction distance-correction values and second correction coefficients, a second correction coefficient corresponding to the vertical-direction distance-correction value that has been calculated in the vertical-direction distance-correction value calculating step; and

a pixel signal correcting step of correcting a signal for the pixel, based on the first correction coefficient that has been calculated in the first correction coefficient calculating step and on the second correction coefficient that has been calculated in the second correction coefficient

calculating step.

6. An image pickup apparatus, comprising:

a distance calculating means for calculating the distance between  
5 the coordinates of an image-constituting pixel and predetermined reference  
coordinates;

a distance-correction value calculating means for calculating a  
distance-correction value, by inputting for the variable in an N-order  
function (N being a positive integer) the distance that has been calculated  
10 in the distance calculating step.

a correction coefficient calculating means for calculating, based on a  
table that represents correspondences between distance-correction values  
and correction coefficients, a correction coefficient corresponding to the  
distance-correction value that has been calculated in the  
15 distance-correction value calculating means; and

a pixel signal correcting means for correcting a signal for the pixel,  
based on the correction coefficient that has been calculated in the correction  
coefficient calculating means.

20 7. The image pickup apparatus according to claim 6, comprising a correction  
coefficient calculating means of calculating the correction coefficient  
corresponding to the distance-correction value that has been calculated in  
the distance-correction value calculating means, by, based on the table that  
represents correspondences between distance-correction values and  
25 correction coefficients, linear interpolation using distance-correction-value

data and correction-coefficient data that are stored in the table.

8. The image pickup apparatus according to claim 6, wherein the reference  
coordinates in the distance calculating means, the coefficients for the  
variable in the N-order function in the distance-correction value calculating  
means, and the distance-correction values and correction coefficients stored  
in the table in the correction coefficient calculating means can be  
determined for each color component of the pixel.

10 9. The image pickup apparatus according to claim 6, comprising a distance  
calculating means for calculating the distance, by regarding as the distance  
the sum of the distance between the coordinates of a pixel corresponding to  
an image signal and the one of two sets of predetermined reference  
coordinates, and the distance between the coordinates of the pixel  
corresponding to the image signal and the other of two sets of  
15 predetermined reference coordinates.

10. An image pickup apparatus, comprising:

a horizontal-direction distance calculating means for calculating the  
20 horizontal-direction distance between the coordinates of an  
image-constituting pixel and predetermined reference coordinates;  
a horizontal-direction distance-correction value calculating means  
for calculating a horizontal-direction distance-correction value, by  
inputting for the variable in a first N-order function (N being a positive  
25 integer) the horizontal-direction distance that has been calculated in the

horizontal-direction distance calculating means;

a first correction coefficient calculating means for calculating, based on a first table that represents correspondences between horizontal-direction distance-correction values and first correction coefficients, a first correction coefficient corresponding to the horizontal-direction distance-correction value that has been calculated in the horizontal-direction distance-correction value calculating means;

a vertical-direction distance calculating means for calculating the vertical-direction distance between the coordinates of an image-constituting pixel and predetermined reference coordinates;

a vertical-direction distance-correction value calculating means for calculating a vertical-direction distance-correction value, by inputting for the variable in a second N-order function (N being a positive integer) the vertical-direction distance that has been calculated in the vertical-direction distance calculating means;

a second correction coefficient calculating means for calculating, based on a second table that represents correspondences between vertical-direction distance-correction values and second correction coefficients, a second correction coefficient corresponding to the vertical-direction distance-correction value that has been calculated in the vertical-direction distance-correction value calculating means; and

a pixel signal correcting means for correcting a signal for the pixel, based on the first correction coefficient that has been calculated in the first correction coefficient calculating means and on the second correction coefficient that has been calculated in the second correction coefficient

**calculating means.**

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